

CLAIMS

1. An apparatus for positioning an element in a borehole, the apparatus comprising an upper positioning means and a lower positioning means for adjusting the plan position of the element at upper and lower levels, respectively, the apparatus being provided with a means to measure the difference in alignment between the first plan position of the element and the second plan position of the element.

2. An apparatus as claimed in claim 1, wherein the means to measure the difference in alignment between the first plan position of the element and the second plan position of the element extends between the upper and lower positioning means

3. An apparatus as claimed in claim 1 or 2, wherein the means to measure the difference in alignment between the first plan position of the element and the second plan position of the element, comprises at least one rigid or taut connection and one or more electrolevel gauges provided on the or each rigid or taut connection.

4. An apparatus as claimed in claim 3, wherein the rigid or taut connection comprises a wire.

5. An apparatus as claimed in claim 3, wherein the rigid or taut connection comprises a bar or tube.

6. An apparatus as claimed in claim 3, 4 or 5, wherein two electrolevel gauges are provided which are arranged

so as to measure the inclination of the rigid or taut connection in mutually orthogonal directions.

7. An apparatus as claimed in claim 6, wherein both of  
5 the electrolevel gauges are provided on a single rigid or taut connection.

8. An apparatus as claimed in any one of claims 1 to 7,  
wherein two rigid or taut connections are provided.

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9. An apparatus as claimed in any one of claims 1 to 8,  
wherein the upper and lower positioning means each  
comprise a guide means for adjusting the plan position  
of an element within the interior space.

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10. An apparatus as claimed in claim 9, wherein the  
guide means comprises a first and a second pair of  
rollers which are moveable in mutually orthogonal  
directions across the interior space.

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11. A Method of positioning an element in a borehole,  
the method comprising the steps of:

- i) placing into the borehole an apparatus comprising an  
upper positioning means and a lower positioning means  
25 for adjusting the plan position of the element at upper  
and lower levels respectively, the apparatus being  
provided with a means to measure the difference in  
alignment between the first plan position of the  
element and the second plan position of the element;  
30 ii) lowering the element into an interior space defined  
by the apparatus to a required depth within the  
borehole; and

iii) measuring the difference in alignment between the first plan position of the element and the second plan position of the element by means of the or each electrolevel gauge; and

- 5   iii) adjusting the upper and lower positioning means to achieve the desired alignment between the first and second plan positions of the element.

12. A method of measuring the difference in alignment  
10 between a first plan position of an element and a second plan position of an element, the method comprising the use of:

- i) at least one rigid or taut connection extending between a first point at the level of the first plan  
15 position and a second point at the level of the second plan position, the first and second points being at an identical displacement from the element;  
ii) one or more electrolevel gauges provided on the or each rigid or taut connection, so as to measure the  
20 inclination of the rigid or taut connection.

13. A method as claimed in claim 12, wherein the rigid or taut connection comprises a wire.

25 14. A method as claimed in claim 12, wherein the rigid or taut connection comprises a bar or tube.

15. A method as claimed in claim 12, 13 or 14, wherein two electrolevel gauges are provided which are arranged  
30 so as to measure the inclination of the rigid or taut connection in mutually orthogonal directions.

16. A method as claimed in claim 15, wherein both of the electrolevel gauges are provided on a single rigid or taut connection.

5 17. A method as claimed in any one of claims 12 to 16, wherein two rigid or taut connections are provided.

18. A method as claimed in any one of claim 12 to 17, wherein the or each electrolevel gauge is connected to  
10 an output metre.

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